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LINDE FUSRAP SITE TONAWANDA, NY W912P4-07-D-0002,0002 DIRECT BURIED UTILITIES AND TUNNEL EXCAVATIONS RESTORATION PLAN

RESTORATION PLAN
DRAWING INDEX

DRAWING NO.	DRAWING TITLE
BRP006-000	COVER SHEET
BRP006-001	GRADING AND PAVEMENT PLAN
BRP006-002	UTILITY LAYOUT PLAN
BRP006-003	STORM SEWER DETAILS
BRP006-004	WATER LINE DETAILS
BRP006-005	ASPHALT AND POST DETAILS

REFERENCE DRAWING
INDEX

DRAWING NO.	DRAWING TITLE
A-474353-2012	PRAXAIR, INC. BUILDING 70 SNOW MELTING APRONS- PLANS AND DETAILS

GENERAL NOTES

BACKFILL

- A. MATERIAL.
- I. MATERIAL WILL BE SOIL AND SOIL-LIKE MATERIAL ORIGINATING FROM THE LINDE FUSRAP SITE. IF REUSE MATERIAL IS EXHAUSTED, NO. 2 STONE WILL BE IMPORTED FROM AN APPROVED OFFSITE SOURCE. IMPORTED NO. 2 STONE WILL BE USED IF REUSE MATERIAL IS FROZEN.
- B. PLACEMENT.
- I. FILL WILL BE PLACED WITH A DUMP TRUCK AND SPREAD WITH A BULLDOZER.
 - II. BACKFILL WILL BE PLACED IN APPROXIMATELY EIGHTEEN (18) TO TWENTY-FOUR (24) INCH LOOSE LIFTS FOLLOWING THE GRADING AND PAVEMENT PLAN AND USING GRADUATED STAKES OR FLAGS.
- C. COMPACTION.
- I. COMPACTION WILL BE ACHIEVED IN ACCORDANCE WITH NYS DOT STANDARD SPECIFICATIONS SECTION 203-3.12. AREAS NOT SUPPORTING STRUCTURES OR ROADWAYS WILL BE COMPACTED TO AT LEAST 90 PERCENT MAXIMUM DRY DENSITY AND AREAS UNDER STRUCTURES OR ROADWAYS WILL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY. COMPACTION SHALL BE DETERMINED BY STANDARD PROCTOR TEST ASTM D-698.
 - II. COMPACTION WILL BE PERFORMED USING A SMOOTH DRUM OR SHEEP'S-FOOT VIBRATORY ROLLER AS DETERMINED BY THE PROJECT ENGINEER DEPENDING ON THE MATERIAL TO BE COMPACTED. THE COMPACTOR WILL MAKE FOUR PASSES TO ENSURE COMPACTION IS IN COMPLIANCE WITH NYS DOT SPECIFICATIONS. A HAND-HELD TAMPER OR WALK BEHIND DUAL DRUM VIBRATORY ROLLER WILL BE USED IN AREAS INACCESSIBLE TO A VIBRATORY ROLLER.
- D. COMPACTION TESTING.
- I. A CERTIFIED TECHNICIAN USING A TROXLER NUCLEAR DENSITY GAUGE WILL BE PRESENT DURING BACKFILLING OPERATIONS TO PERFORM COMPACTION TESTING. THE PROJECT ENGINEER WILL OVERSEE ALL COMPACTION OPERATIONS.
 - II. COMPACTION TESTING WILL BE PERFORMED ONCE PER 40,000 FT² FOR NONSTRUCTURAL AREAS AND ONCE PER 5,000 FT² FOR STRUCTURAL AREAS AND ROADWAYS.
 - III. COMPACTION TEST LOCATIONS AND ELEVATIONS WILL BE COLLECTED.
 - IV. ALL COMPACTION TESTING RESULTS WILL BE FORWARDED TO THE USACE.

FINAL COVER

- A. MATERIAL.
- I. FINAL COVER MATERIALS VARY AMONG AREAS TO BE RESTORED.
- B. IMPORTED FILL.
- I. A MINIMUM ONE (1) FOOT± THICK LAYER OF APPROVED IMPORTED FILL CONSISTING OF CRUSHED STONE, GRAVEL, OR SIMILAR GRANULAR MATERIAL WILL BE PLACED OVER REUSE MATERIAL TO REACH FINAL GRADE IN UNPAVED AREAS.
- C. BITUMINOUS PAVEMENT.
- I. ALL MATERIALS SHALL COMPLY WITH NYS DOT STANDARD SPECIFICATION SECTION 400 "BITUMINOUS PAVEMENTS".
- D. CONCRETE PAVEMENT.
- I. ALL MATERIALS SHALL COMPLY WITH NYS DOT STANDARD SPECIFICATION SECTION 500 "PORTLAND CEMENT CONCRETE".

UTILITIES

- A. STORM DRAIN PIPE.
- I. ALL STORM DRAIN PIPE WILL BE INSTALLED ACCORDING TO NYS DOT STANDARD SPECIFICATION SECTION 603 "CULVERTS AND STORM DRAINS".
- B. DRAINAGE STRUCTURES.
- I. ALL DRAINAGE STRUCTURES WILL BE INSTALLED ACCORDING TO NYS DOT STANDARD SPECIFICATION SECTION 604 "DRAINAGE STRUCTURES".
- C. WATER PIPES AND APPURTENANCES.
- I. ALL WATER PIPES AND APPURTENANCES WILL BE INSTALLED ACCORDING TO THE APPROPRIATE AWWA STANDARD(S).

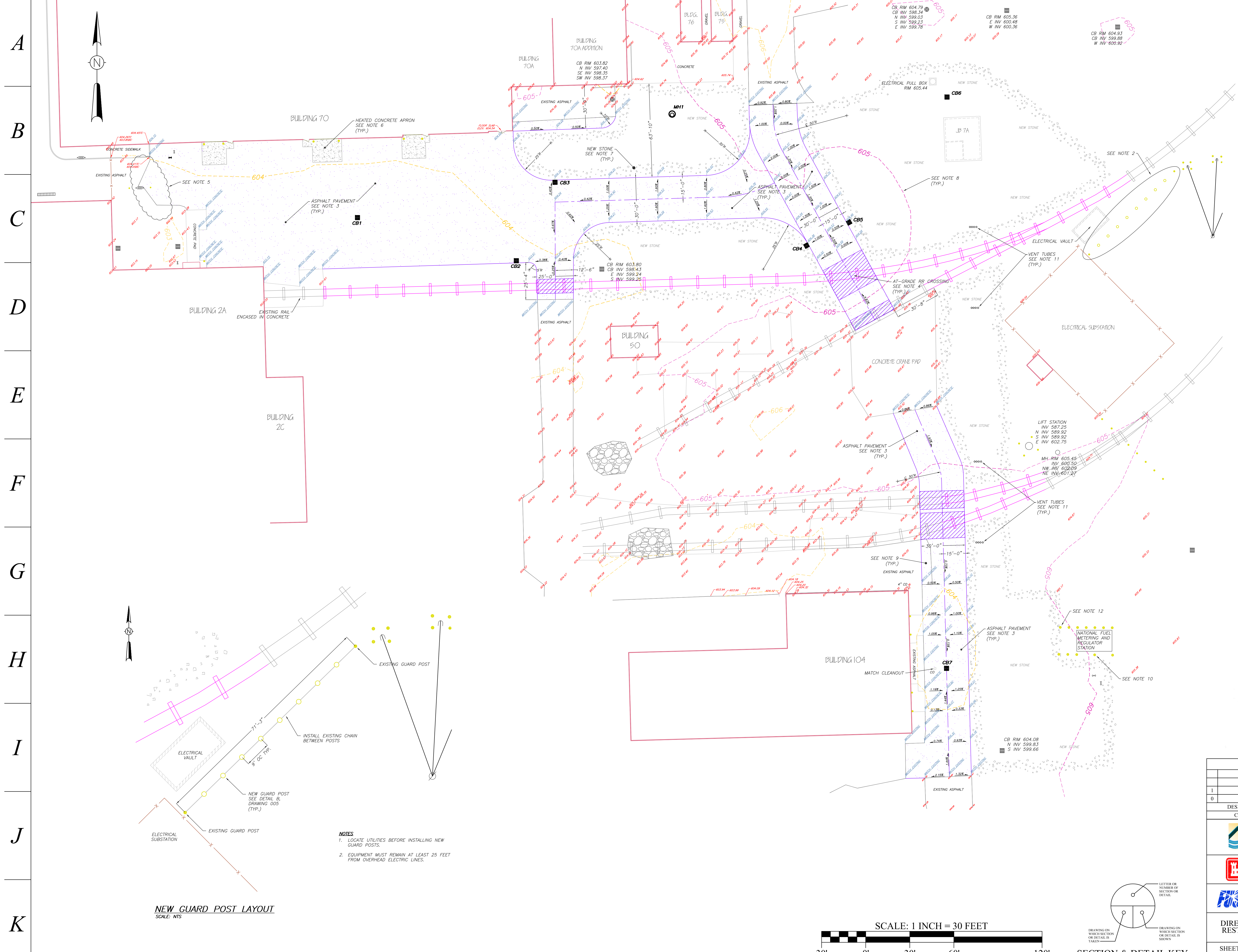
ANY CHANGE TO THIS RESTORATION PLAN MUST BE APPROVED BY THE PROJECT ENGINEER



REVISIONS			
1	ISSUED FOR PRAXAIR APPROVAL		10/25/12
0	ISSUED FOR USACE APPROVAL		10/9/12
DESIGNED BY:	DRAWN BY:	APPROVED BY:	
C. BERES	C. BERES	W. LORENZ	
CABRERA SERVICES RADIOLOGICAL · ENGINEERING · REMEDIATION			
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NEW YORK			
LINDE FUSRAP SITE TONAWANDA, NY W912P4-07-D-0002, 0002			
DIRECT BURIED UTILITIES AND TUNNEL EXCAVATIONS RESTORATION PLAN - COVER SHEET			
SHEET NO.	AREA/SUBTASK	DRAWING NO.	DATE
SHEET 1 OF 6	AREA D2/M/F	BRP006-000	OCTOBER 9, 2012

SIGNATURE _____ PRINTED NAME _____ DATE _____
 PRAXAIR REPRESENTATIVE PRAXAIR REPRESENTATIVE

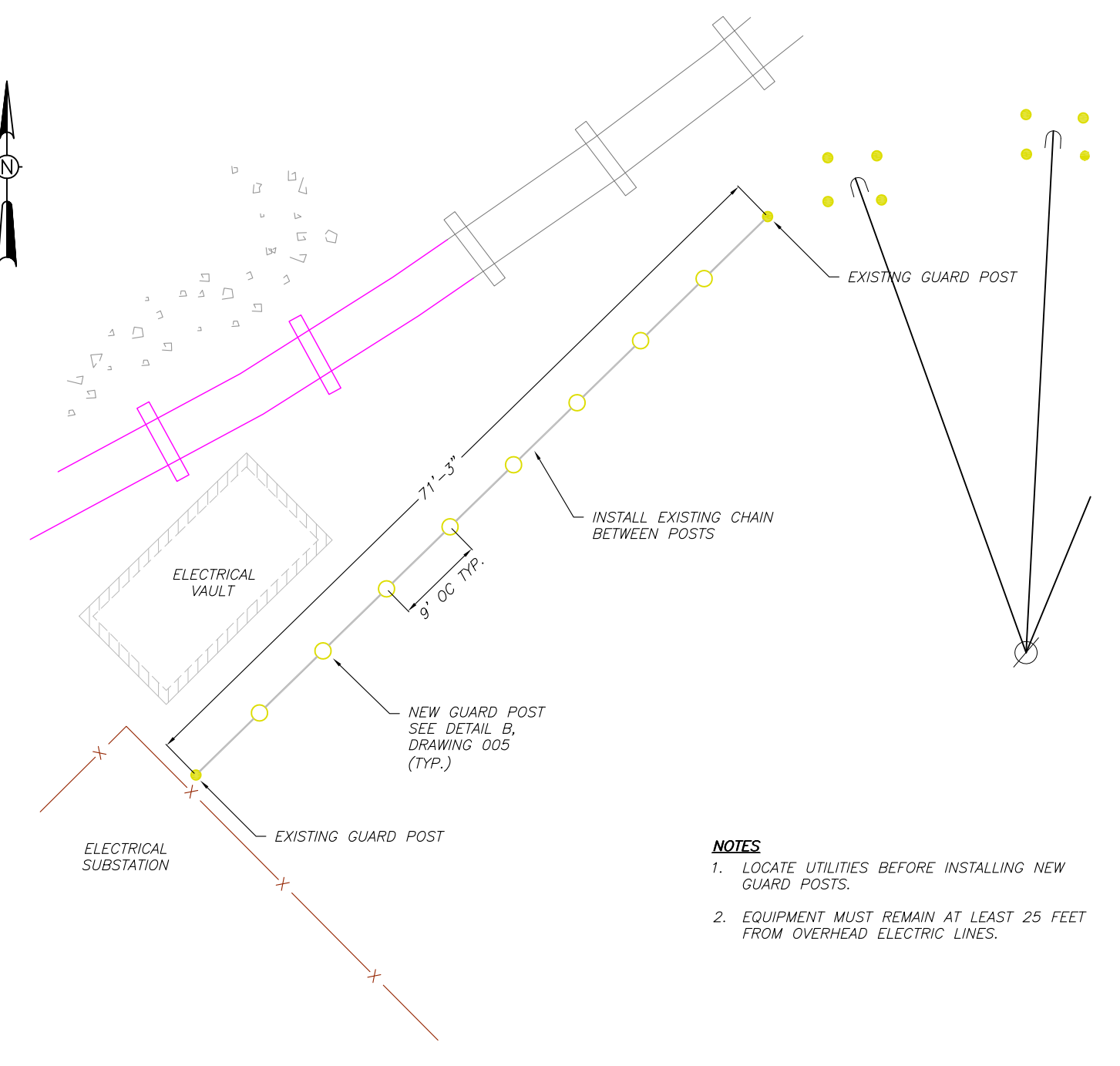
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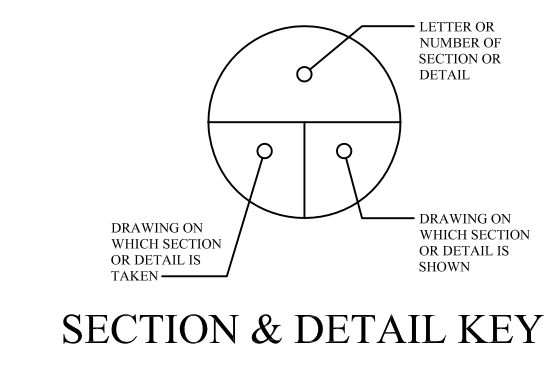
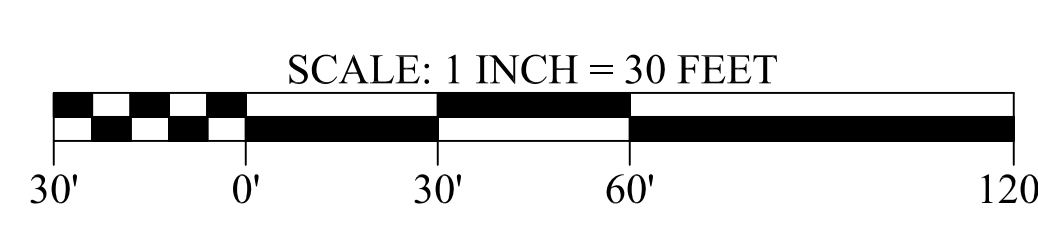
LEGEND

EXISTING	NEW	DESCRIPTION
[Red outline]	[Blue outline]	BUILDING
[Red dashed line]	[Blue dashed line]	ASPHALT PAVEMENT
[Red solid line]	[Blue solid line]	CONCRETE PAVEMENT
[Red dotted line]	[Blue dotted line]	STONE AREA
[Red dashed line]	[Blue dashed line]	SPOT ELEVATION
[Red dashed line]	[Blue dashed line]	CONTOURS
[Red circle]	[Blue circle]	MANHOLE (MH)
[Red square]	[Blue square]	CATCH BASIN (CB)
[Red cross]	[Blue cross]	VALVE
[Red line]	[Blue line]	FENCE
[Red line]	[Blue line]	RAILROAD
[Red line]	[Blue line]	RAILROAD CROSSING

- NOTES**
- HORIZONTAL DATUM LISTED AS NEW YORK STATE PLANE COORDINATES NAD 27 WEST ZONE (3103).
 - FOR NEW GUARD POST LOCATION SEE "NEW GUARD POST LAYOUT" THIS DRAWING.
 - ASPHALTIC PAVEMENT SHALL BE STANDARD DUTY, EXCEPT AT-GRADE RAILROAD CROSSINGS, AND MATCH FINAL GRADE. SEE DRAWING 005 FOR DETAILS.
 - AT-GRADE RAILROAD CROSSINGS SHALL BE HEAVY DUTY AND MATCH PROFILE OF THE EXISTING RAILROAD. SEE DRAWING 005 FOR DETAILS.
 - ASPHALTIC PAVEMENT RESTORATION MAY REQUIRE SAW CUTTING AND HAND-WORK. EXTENT OF RESTORATION TO BE DETERMINED IN FIELD.
 - HEATED CONCRETE APRONS TO BE CONSTRUCTED ACCORDING TO DRAWING A-474353-2012. ASPHALTIC PAVEMENT TO MATCH TOP OF CONCRETE APRONS.
 - NEW STONE TO BE UNIFORMLY GRADED AWAY FROM STRUCTURES AND PAVEMENT (CONCRETE AND ASPHALTIC) TOWARD THE NEAREST STORM DRAINAGE INLET STRUCTURE.
 - PROPOSED CONTOURS AND ELEVATIONS ARE APPROXIMATE IN LOCATION AND BASED ON BEST AVAILABLE INFORMATION. ACTUAL LOCATION AND ELEVATION TO BE DETERMINED IN FIELD.
 - REMOVE EXISTING ASPHALT.
 - BOLLARDS REMOVED FOR UTILITY RELOCATION WILL BE INSTALLED ACCORDING TO THE APPROVED UTILITY DIRECT BURIAL PROJECT 100% DESIGN.
 - BOLLARDS WILL BE INSTALLED AROUND VENT TUBES ACCORDING TO THE APPROVED UTILITY DIRECT BURIAL PROJECT 100% DESIGN.
 - BOLLARDS REMOVED DURING REMEDIAL ACTIVITIES WILL BE INSTALLED ACCORDING TO DETAIL A, DRAWING 005 OF THIS RESTORATION PLAN.
 - BACKFILL MATERIAL AND COMPACTION EFFORT SHALL BE IN ACCORDANCE WITH APPROVED SITE PLANS.

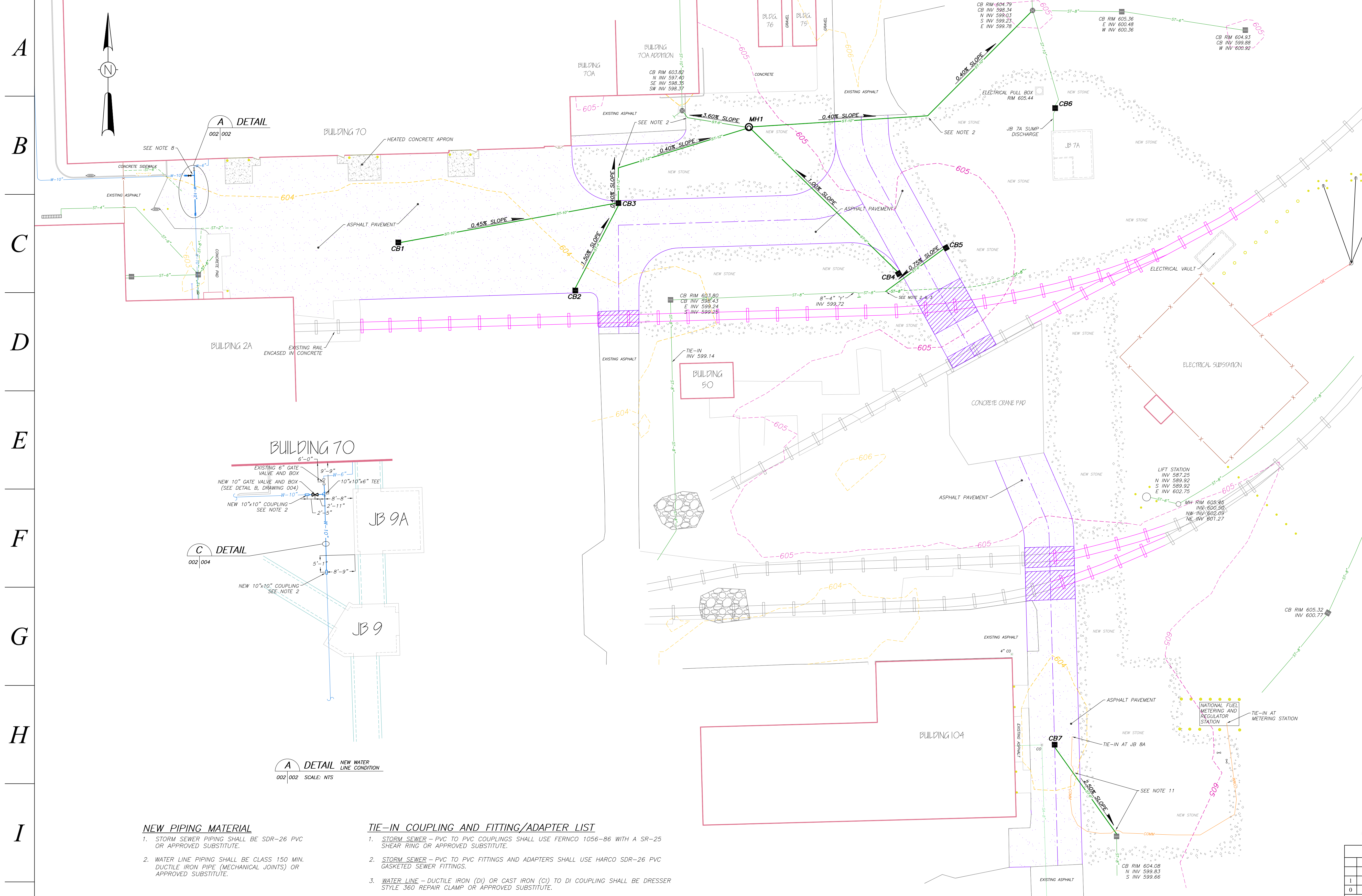


- NOTES**
- LOCATE UTILITIES BEFORE INSTALLING NEW GUARD POSTS.
 - EQUIPMENT MUST REMAIN AT LEAST 25 FEET FROM OVERHEAD ELECTRIC LINES.



REVISIONS			
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C. BERES	C. BERES	W. LORENZ	
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U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NEW YORK			
LINDE FUSRAP SITE TONAWANDA, NY W912P4-07-D-0002, 0002			
DIRECT BURIED UTILITIES AND TUNNEL EXCAVATIONS RESTORATION PLAN - GRADING AND PAVEMENT PLAN			
SHEET NO.	AREA/SUBTASK	DRAWING NO.	DATE
SHEET 2 OF 6	AREA D2/M/F	BRP006-001	OCTOBER 9, 2012

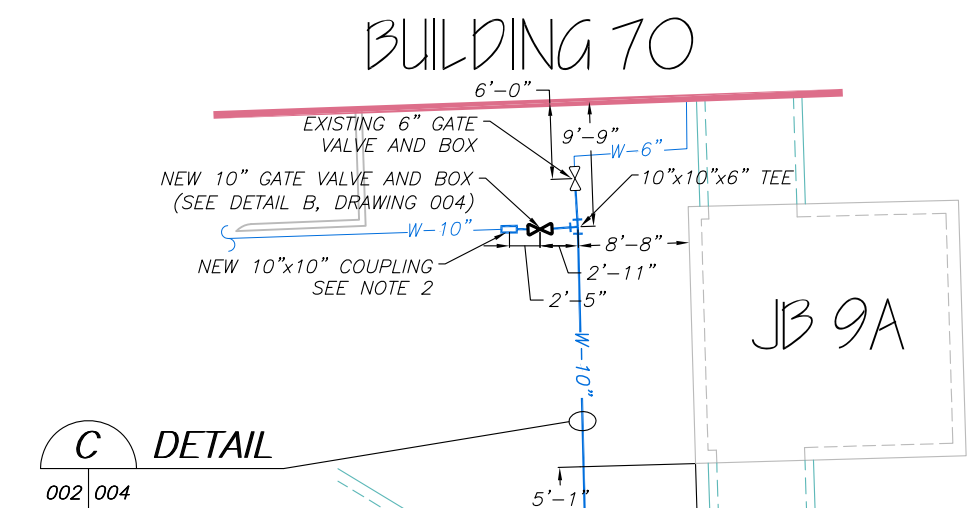
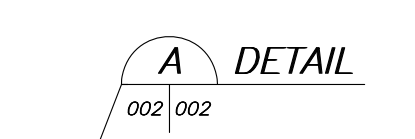
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16



LEGEND

EXISTING	NEW	
[Red outline]	[Blue outline]	BUILDING
[Grey hatched]	[Purple hatched]	ASPHALT PAVEMENT
[White hatched]	[Green hatched]	CONCRETE PAVEMENT
[Dotted pattern]	[Dotted pattern]	STONE AREA
[Dashed line]	[Dashed line]	CONTOURS
[Green line]	[Green line]	STORM SEWER (ST)
[Blue line]	[Blue line]	ABANDONED STORM SEWER (ST)
[Orange line]	[Orange line]	WATER LINE (W)
[Yellow line]	[Yellow line]	COMMUNICATION CONDUIT (COMM)
[Circle]	[Circle]	MANHOLE (MH)
[Square]	[Square]	CATCH BASIN (CB)
[X]	[X]	VALVE
[Hatched]	[Hatched]	FENCE
[Hatched]	[Hatched]	RAILROAD
[Hatched]	[Hatched]	RAILROAD CROSSING

- NOTES**
- HORIZONTAL DATUM LISTED AS NEW YORK STATE PLANE COORDINATES NAD 27 WEST ZONE (3103).
 - COUPLINGS AND FITTINGS SHALL BE THE TYPE NOTED IN THE "TIE-IN COUPLING AND FITTING/ADAPTER LIST" THIS DRAWING.
 - EXISTING PIPING WILL REQUIRE ABANDONMENT IN PLACE TO FACILITATE INSTALLATION OF NEW PIPE. PLUG EXISTING PIPING WITH NON-SHRINK GROUT.
 - PRIOR TO DIGGING AND TRENCHING, COMPLETE UTILITY CLEARANCE AND COORDINATE WITH OWNER TO REQUEST INTERRUPTION OF SERVICES THAT MAY BE PART OF THE PLANNED WORK. TRAFFIC AND PEDESTRIAN CONTROLS SHALL ALSO BE IN PLACE PRIOR TO COMMENCING WORK.
 - PIPE PLACEMENT AND BACKFILLING OPERATIONS WILL BE PERFORMED CONCURRENTLY WITH TRENCHING. THIS APPROACH WILL MINIMIZE THE AMOUNT OF OPEN TRENCH. THUS REDUCING PROBLEMS WITH SURFACE WATER, FROZEN GROUND, IMPACT DAMAGE, FLOTATION, AND TRAFFIC FLOW.
 - BEDDING AROUND NEW PIPING WILL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. SEE DETAIL C, DRAWING 003 FOR STORM SEWER BEDDING. SEE DETAIL C, DRAWING 004 FOR WATER LINE BEDDING.
 - PIPE BEDDING WILL BE FINE-GRADED TO PROVIDE UNIFORM LONGITUDINAL SUPPORT UNDER AND AROUND THE PIPE SO THE PIPE WILL NOT DEFORM AND WILL RESIST THE DESIGN LOADS. THE AREA BENEATH EACH BELL WILL BE OVER-EXCAVATED TO ENSURE UNIFORM BEARING FOR THE PIPE. BACKFILL MATERIAL WILL BE PLACED AND CONSOLIDATED AROUND THE PIPE, SO THAT NO VOIDS ARE PRESENT.
 - PIPING WILL BE INSTALLED AND LEAK TESTED UNDER THE SUPERVISION OF A LICENSED MASTER PLUMBER.
 - SEE DRAWING 003 FOR STORM SEWER MANHOLE AND CATCH BASIN DETAILS. FOR LOCATIONS AND INVERTS SEE SEWER STRUCTURE SCHEDULE THIS DRAWING.
 - SEE DRAWING 004 FOR WATER LINE DETAILS.
 - NEW STORM SEWER SHALL BE PLACED BENEATH EXISTING COMMUNICATION CONDUIT.



NEW PIPING MATERIAL

- STORM SEWER PIPING SHALL BE SDR-26 PVC OR APPROVED SUBSTITUTE.
- WATER LINE PIPING SHALL BE CLASS 150 MIN. DUCTILE IRON PIPE (MECHANICAL JOINTS) OR APPROVED SUBSTITUTE.

TIE-IN COUPLING AND FITTING/ADAPTER LIST

- STORM SEWER - PVC TO PVC COUPLINGS SHALL USE FERNCO 1056-86 WITH A SR-25 SHEAR RING OR APPROVED SUBSTITUTE.
- STORM SEWER - PVC TO PVC FITTINGS AND ADAPTERS SHALL USE HARCO SDR-26 PVC GASKETED SEWER FITTINGS.
- WATER LINE - DUCTILE IRON (DI) OR CAST IRON (CI) TO DI COUPLING SHALL BE DRESSER STYLE 360 REPAIR CLAMP OR APPROVED SUBSTITUTE.
- WATER LINE - ASBESTOS CEMENT (AC) TO DI COUPLING SHALL BE SELECTED BY A LICENSED MASTER PLUMBER.

SEWER STRUCTURE SCHEDULE

DESIGNATION	STRUCTURE TYPE	COORDINATES		RIM	ELEVATIONS (EL)				FRAME AND COVER OR GRATE		DETAILS (SEE DWG. 003)	
		NORTH	EAST		STRUCT. INV.	INV. OUT 1	INV. OUT 2	INV. 1	INV. 2	TYPE		PATTERN NO.*
MH1	STORM	1084815.43	417566.09	604.60	598.90	(E) 599.82	(W) 599.90	(SW) 599.98	(SE) 601.49	SOLID	R-1726-A	A
CB1	STORM	1084743.48	417351.99	603.40	600.17	(E) 601.17	-	-	-	GRATE	CB3650G	B
CB2	STORM	1084716.11	417460.07	603.87	600.99	(N) 601.99	-	-	-	GRATE	CB3650G	B
CB3	STORM	1084769.52	417486.35	604.18	598.39	(N) 600.39	-	(W) 600.56	(S) 601.06	GRATE	CB3650G	B
CB4	STORM	1084726.38	417657.52	604.38	601.65	(NW) 602.55	-	-	-	GRATE	CB3650G	B
CB5	STORM	1084742.77	417686.45	604.46	599.22	(SW) 600.22	-	-	-	GRATE	CB3650G	B
CB6	STORM	1084827.55	417753.10	605.16	598.82	(N) 599.80	-	(S) 600.29	-	GRATE	CB3650G	B
CB7	STORM	1084438.65	417752.79	603.60	598.82	(S) 601.46	-	-	-	GRATE	CB3650G	B

STRUCT. INV = INVERT OF PRECAST MONOLITHIC BASE SECTION
* MANHOLE AND CATCH BASIN FRAME AND COVER OR GRATE BY KISTNER CONCRETE OR APPROVED EQUAL.



REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR PRAXAIR APPROVAL	10/25/12
0	ISSUED FOR USACE APPROVAL	10/9/12

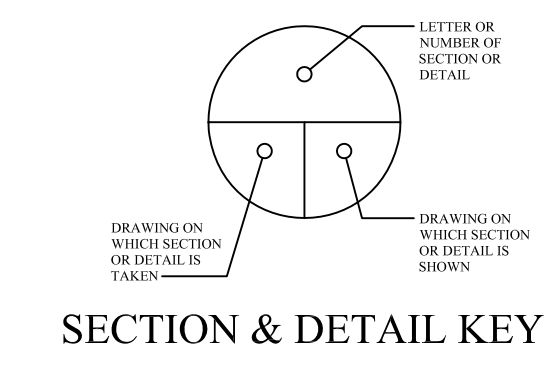
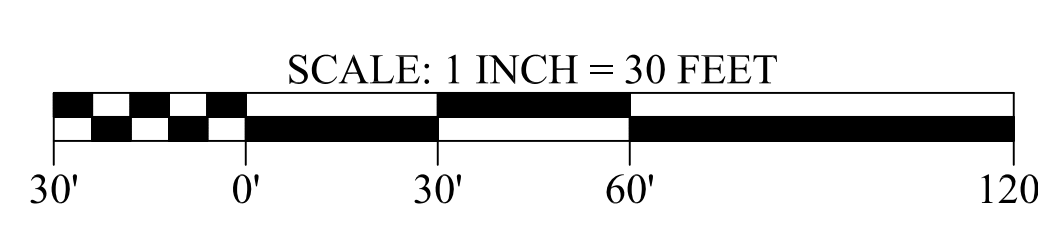
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U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK

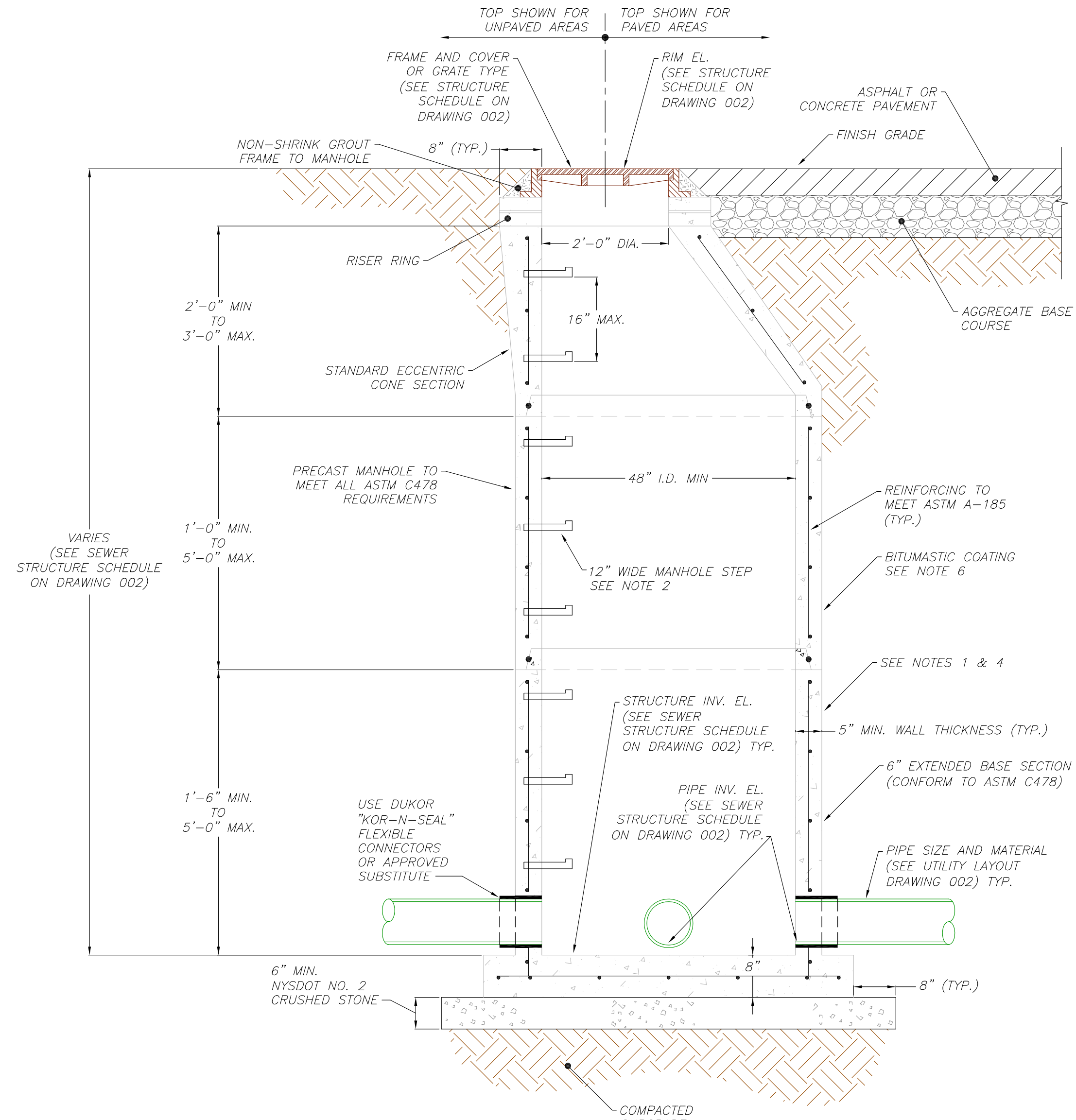
LINDE FUSRAP SITE
TONAWANDA, NY
W912P4-07-D-0002, 0002

DIRECT BURIED UTILITIES AND TUNNEL EXCAVATIONS RESTORATION PLAN - UTILITY LAYOUT PLAN

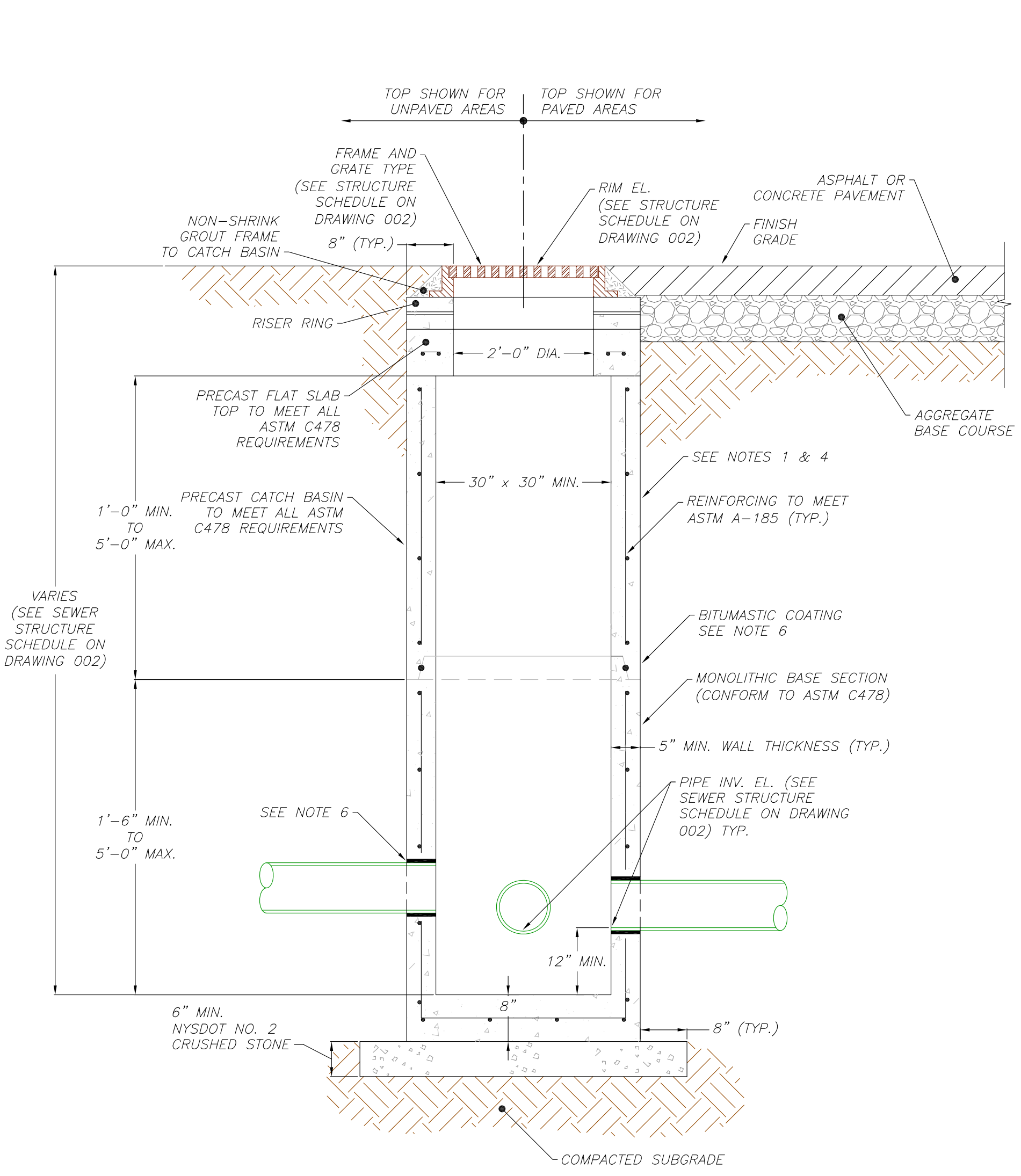
SHEET NO.	AREA/SUBTASK	DRAWING NO.	DATE
SHEET 3 OF 6	AREA D2/M/F	BRP006-002	OCTOBER 9, 2012



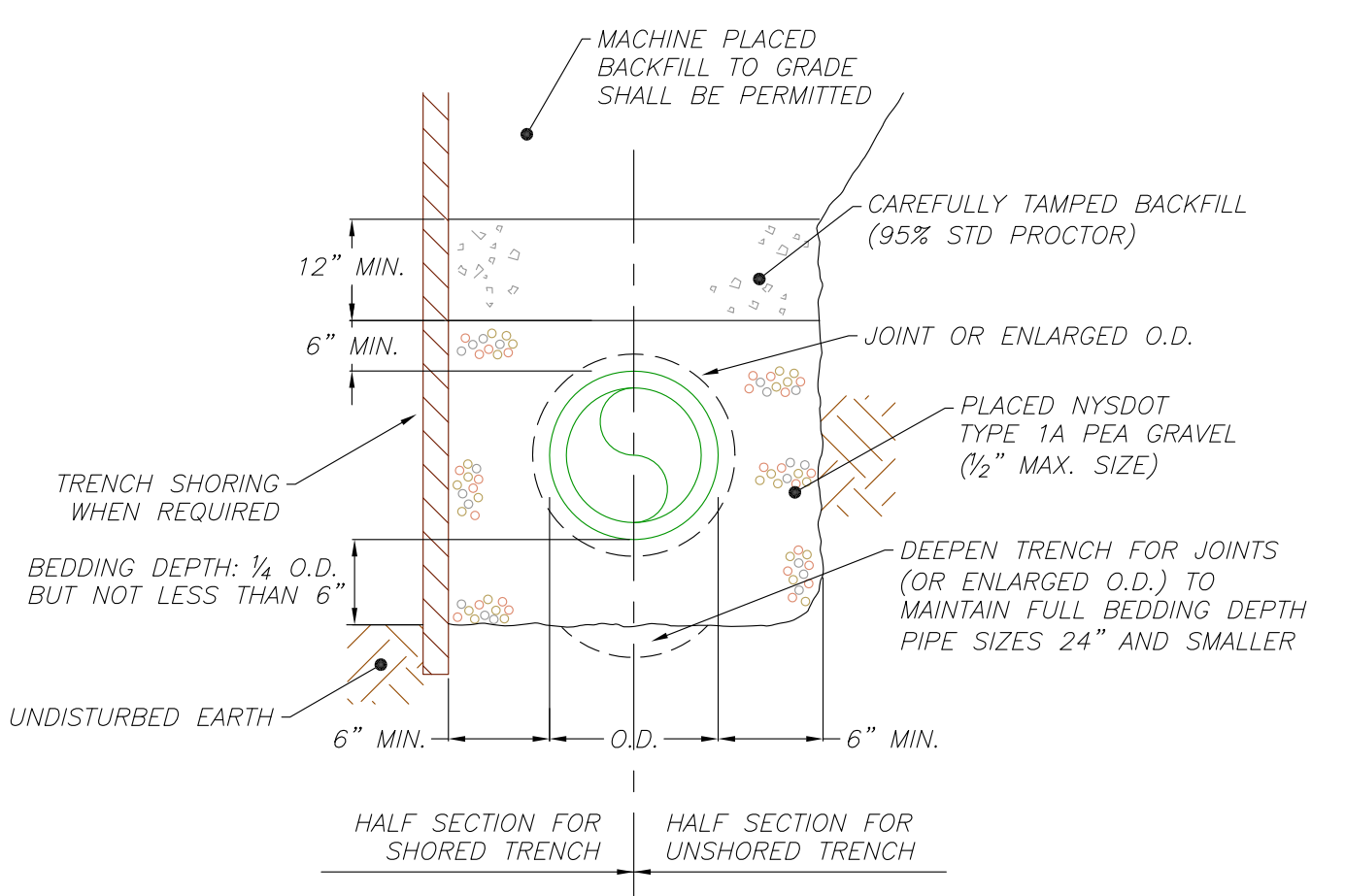
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A DETAIL TYPICAL PRECAST CONCRETE MANHOLE
002/003 SCALE: NTS

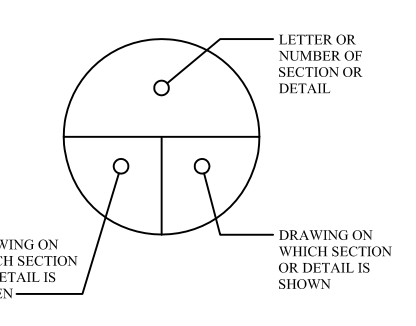


B DETAIL TYPICAL PRECAST CONCRETE CATCH BASIN
002/003 SCALE: NTS



C DETAIL TYPICAL PVC PIPE BEDDING
002/003 SCALE: NTS

- NOTES**
1. ALL PRECAST CONCRETE TO COMPLY WITH ACI 318 AND SHALL BE A MINIMUM STRENGTH OF 4,000 PSI AT 28 DAYS. REINFORCING SHALL COMPLY WITH ASTM A-185.
 2. STEEL REINFORCED MANHOLE STEPS SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH OSHA STANDARDS AND ASTM C-478.
 3. ALL CONCRETE UNLESS OTHERWISE NOTED SHALL COMPLY WITH ACI 318 AND SHALL BE A MINIMUM STRENGTH OF 3,000 PSI AT 28 DAYS.
 4. MANHOLE AND CATCH BASIN STRUCTURES, FRAME AND COVER OR GRATE SHALL BE RATED FOR AASHTO HS-20 LOADS (TRAFFIC RATED).
 5. KNOCKOUT OR CUTOUT SIZE IS EQUAL TO PIPE OUTER DIAMETER PLUS MANHOLE WALL THICKNESS. MINIMUM DISTANCE BETWEEN HOLES IS 8". GROUT ANNULAR SPACE BETWEEN WALL AND PIPE WITH NON-SHRINK HYDRAULIC CEMENT TO INSURE WATERTIGHT SEAL.
 6. MANHOLE OR CATCH BASIN OUTSIDE WALL SURFACE COATING SHALL BE BITUMINOUS MASTIC OR APPROVED SUBSTITUTE MEETING NYSDOT 417-04.
 7. MANHOLE AND CATCH BASIN RIM SHALL BE ADJUSTED TO GRADE WITH APPROVED PRE-CAST RISER RINGS.
 - i. JOINTS BETWEEN CONE SECTION AND RISER RINGS SHALL BE MORTARED IN PLACE
 - ii. INDIVIDUAL RINGS SHALL NOT EXCEED 6" IN THICKNESS. THE TOTAL NUMBER PLACED SHALL BE LIMITED TO (2) OR A MAXIMUM OF 12" IN HEIGHT.
 8. SEWER PIPE SHALL NOT BE CLOSER THAN 6" TO MANHOLE JOINT SURFACES FOR BASE AND BARREL SECTIONS.
 9. FIRST MANHOLE STEP SHALL BE 6" FROM THE TOP OF THE CONE.

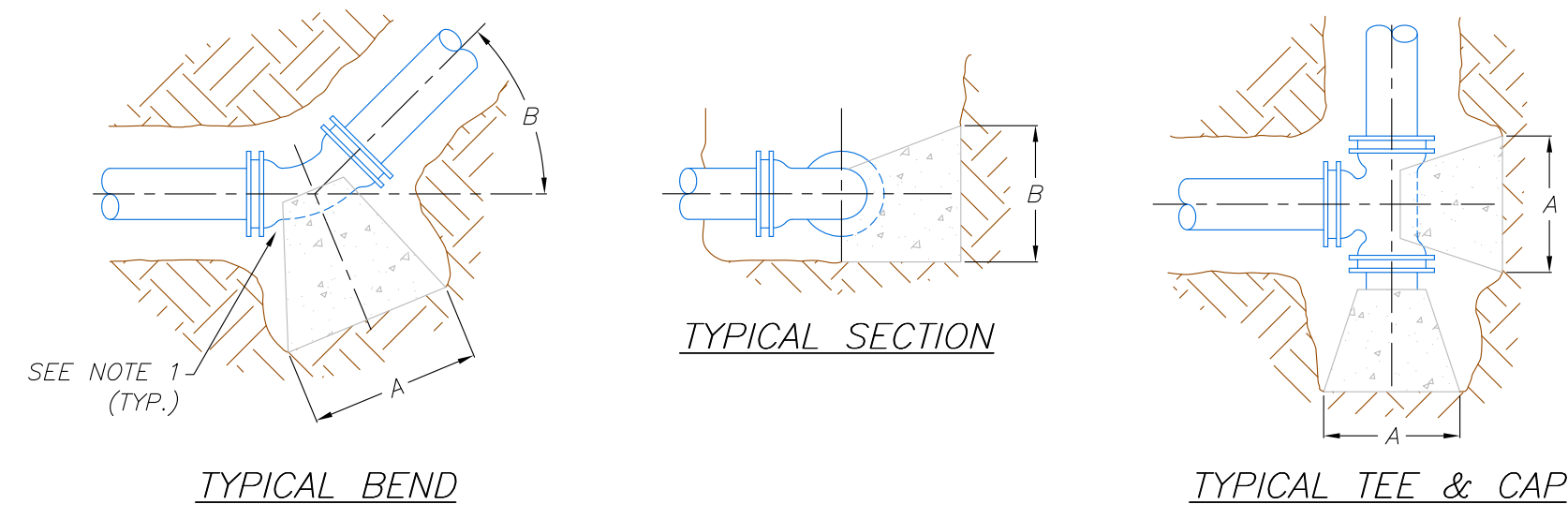


SECTION & DETAIL KEY



REVISIONS			
1	ISSUED FOR PRAXAIR APPROVAL		10/25/12
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DIRECT BURIED UTILITIES AND TUNNEL EXCAVATIONS RESTORATION PLAN - STORM SEWER DETAILS			
SHEET NO.	AREA/SUBTASK	DRAWING NO.	DATE
SHEET 4 OF 6	AREA D2/M/F	BRP006-003	OCTOBER 9, 2012

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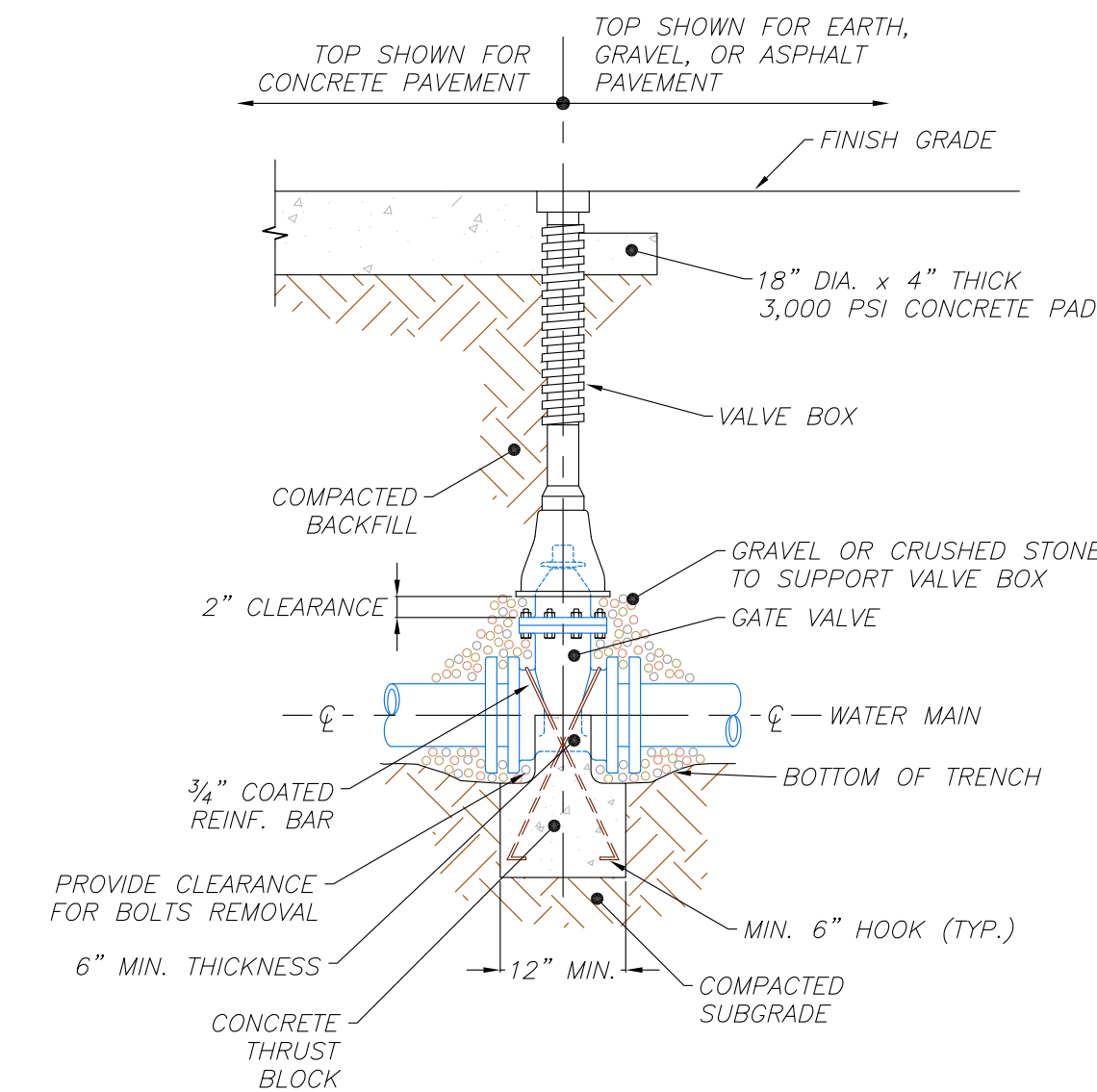


	90° BEND		45° BEND		22½° BEND		11¼° BEND		TEES & CAPS	
	A	B	A	B	A	B	A	B	A	B
6"	2'-0"	2'-0"	1'-6"	1'-6"	1'-3"	1'-3"	1'-0"	1'-0"	1'-9"	1'-9"
8"	2'-8"	2'-8"	2'-0"	2'-0"	1'-6"	1'-6"	1'-0"	1'-0"	2'-3"	2'-3"
10"	3'-6"	3'-3"	2'-6"	2'-6"	1'-9"	1'-9"	1'-3"	1'-3"	3'-0"	2'-9"
12"	4'-6"	3'-9"	3'-3"	2'-9"	2'-3"	2'-3"	1'-6"	1'-6"	4'-3"	2'-9"
16"	7'-0"	4'-0"	4'-3"	3'-9"	3'-0"	2'-9"	2'-0"	2'-0"	5'-6"	3'-9"

A DETAIL THRUST BLOCK
002 004 SCALE: NTS

NOTES

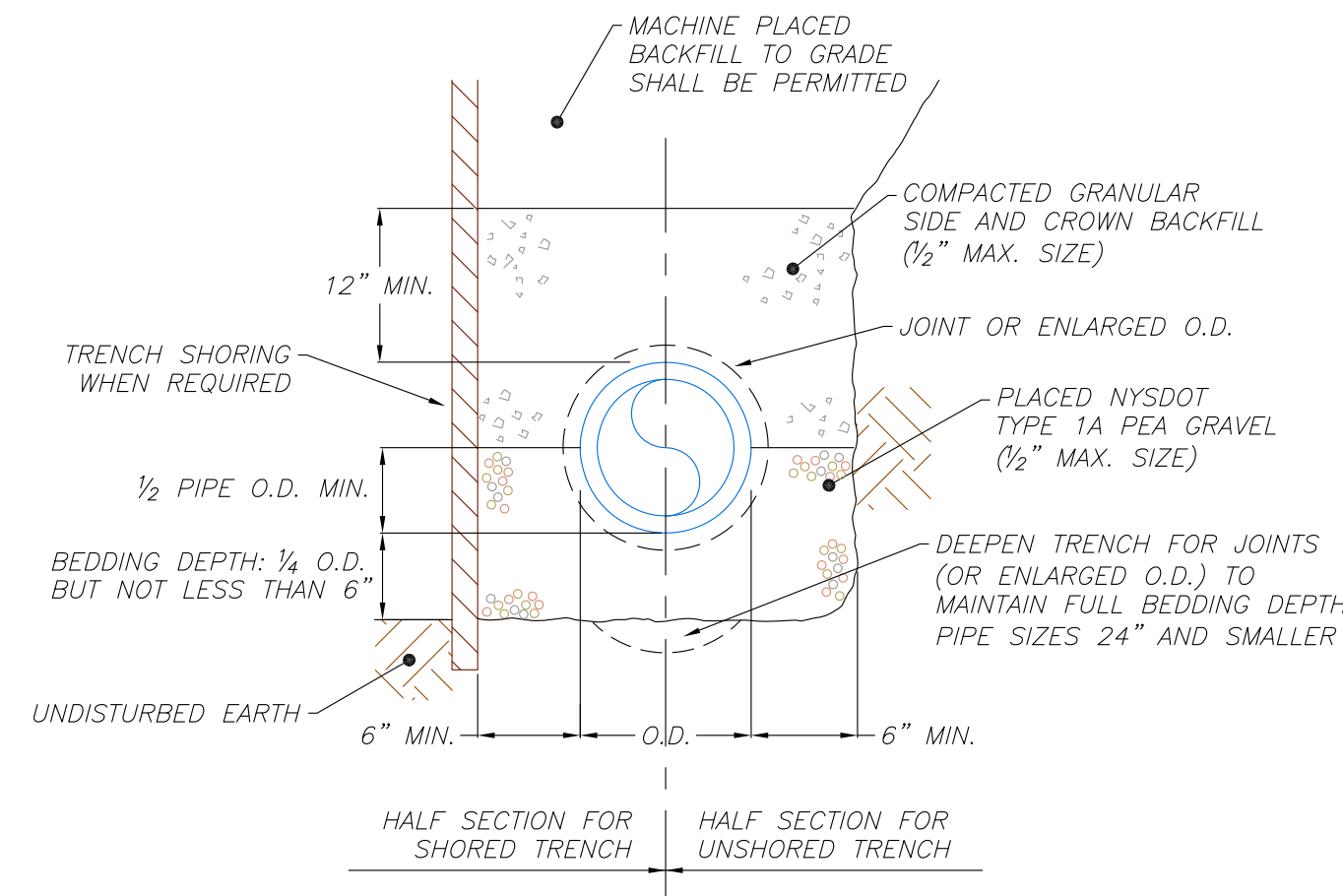
1. PROVIDE CLEARANCE FOR BOLT REMOVAL.
2. BEARING AREAS ARE BASED ON 200 PSI INTERNAL TEST PRESSURE, 110 LB/FT SOIL DENSITY, AND A 2,000 PSF SOIL BEARING PRESSURE. IF WEAK (LESS THAN 2,000 PSF RESISTANCE) SOIL POCKETS ARE ENCOUNTERED, INCREASE THE BEARING AREAS SHOWN TO PREVENT MOVEMENT UNDER TEST OR OPERATING PRESSURES.
3. THRUST BLOCKS SHALL BE 3,000 PSI CONCRETE (MIN.)



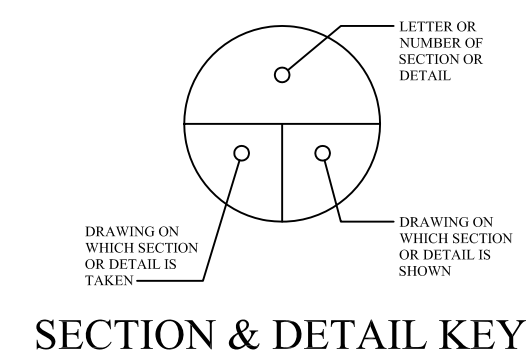
B DETAIL TYPICAL GATE VALVE AND BOX
002 004 SCALE: NTS

NOTES

1. WATER LINE OPERATING PRESSURE IS 50 PSI NOMINAL.
2. NEW WATER LINE SHALL MEET THE LATEST REQUIREMENTS OF ANSI/AWWA C151/A21.51. INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF ANSI/AWWA C111/A21.11.
3. INSTALLATION, PRESSURE TESTING, AND DISINFECTING OF NEW POTABLE WATER LINES SHALL BE COMPLETED UNDER THE SUPERVISION OF LICENSED MASTER PLUMBER.
4. NEWLY LAID PIPING OR ANY VALVED SECTION OF PIPING SHALL, UNLESS OTHERWISE SPECIFIED, BE SUBJECTED TO A PRESSURE TEST OF NOT LESS THAN ONE AND ONE-HALF TIMES DESIGN PRESSURE FOR NOT LESS THAN ONE HOUR.
5. ALL THRUST BLOCKING SHALL BE PLACED IN ACCORDANCE WITH DETAIL A THIS DRAWING.
6. WHEN WORK IS NOT IN PROGRESS, OPEN ENDS OF PIPE, FITTINGS, AND VALVES SHALL BE SECURELY CLOSED SO NO TRENCH WATER, EARTH, OR OTHER SUBSTANCE WILL ENTER THE PIPES OR FITTINGS.
7. RE-CONNECT WATER LINES USING COUPLING TYPE IN THE "EXISTING TO NEW PIPING TIE-IN COUPLING LIST" ON DRAWING 002.

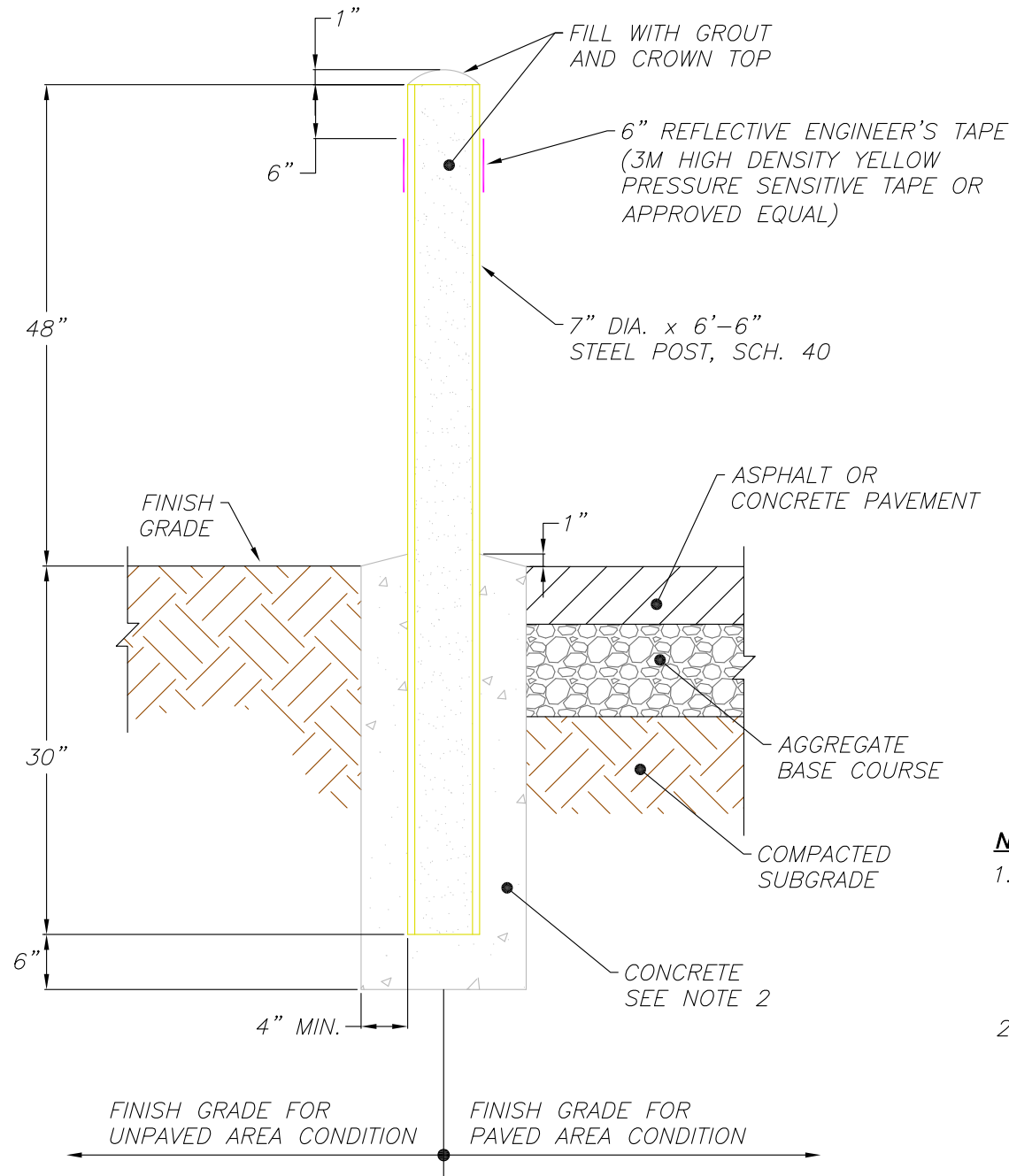


C DETAIL TYPICAL PIPE CLASS "B" BEDDING
002 004 SCALE: NTS



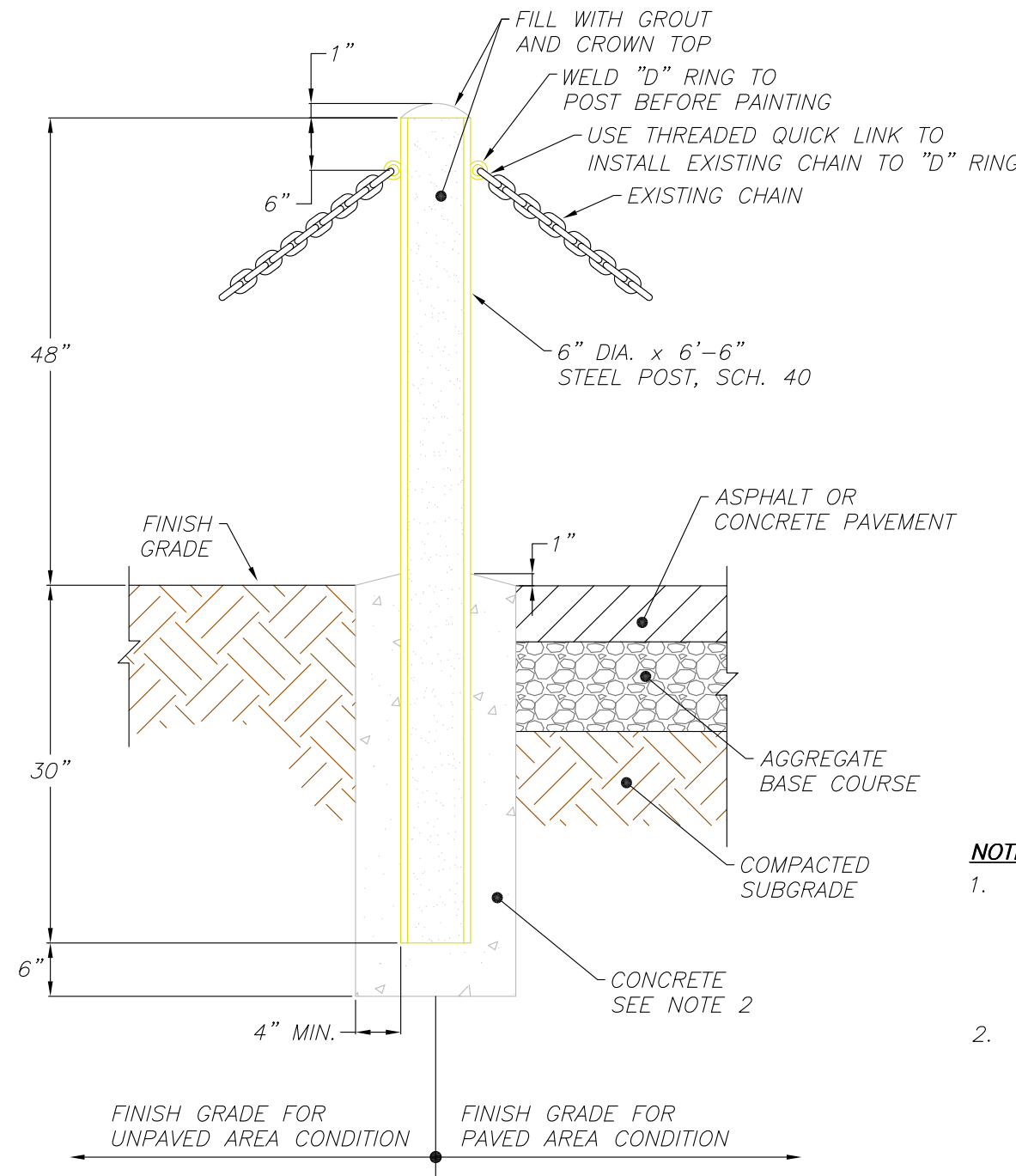
REVISIONS			
1	ISSUED FOR PRAXAIR APPROVAL		10/25/12
0	ISSUED FOR USACE APPROVAL		10/9/12
DESIGNED BY:	DRAWN BY:	APPROVED BY:	
C. BERES	C. BERES	W. LORENZ	
CABRERA SERVICES RADIOLOGICAL · ENGINEERING · REMEDIATION			
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NEW YORK			
LINDE FUSRAP SITE TONAWANDA, NY W912P4-07-D-0002, 0002			
DIRECT BURIED UTILITIES AND TUNNEL EXCAVATIONS RESTORATION PLAN - WATER LINE DETAILS			
SHEET NO.	AREA/SUBTASK	DRAWING NO.	DATE
SHEET 5 OF 6	AREA D2/M/F	BRP006-004	OCTOBER 9, 2012

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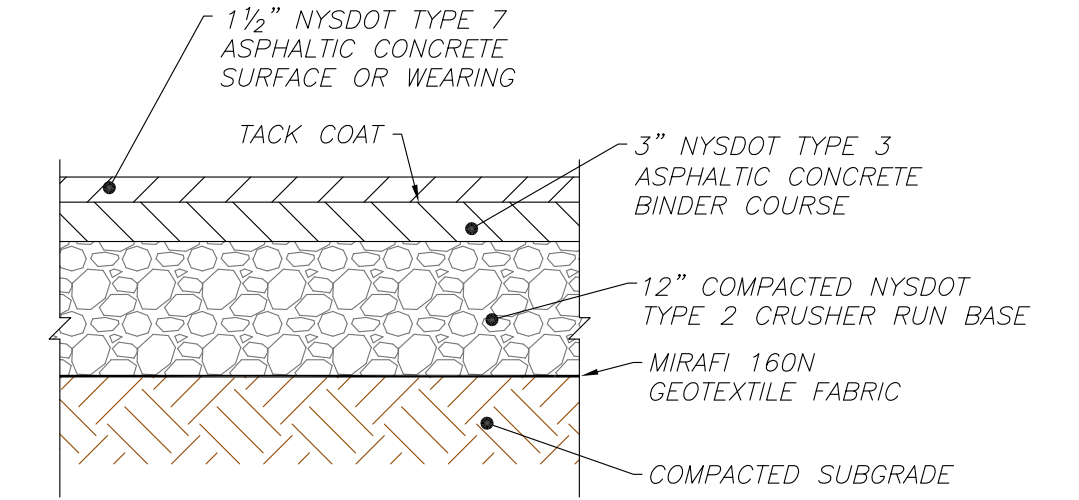
A DETAIL TYPICAL BOLLARD
001|005 SCALE: NTS

- NOTES**
1. GUARD POST TO BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER AND TWO COATS OF EXTERIOR HIGH GLOSS ENAMEL, COLOR YELLOW.
 2. CONCRETE TO HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.



B DETAIL TYPICAL SUBSTATION GUARD POST
001|005 SCALE: NTS

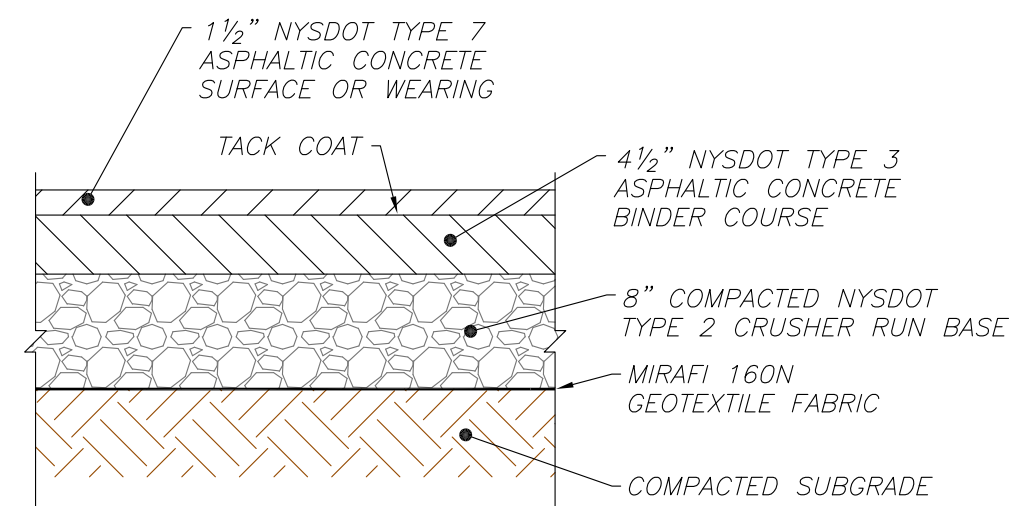
- NOTES**
1. GUARD POST TO BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER AND TWO COATS OF EXTERIOR HIGH GLOSS ENAMEL, COLOR YELLOW.
 2. CONCRETE TO HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,000 PSI.



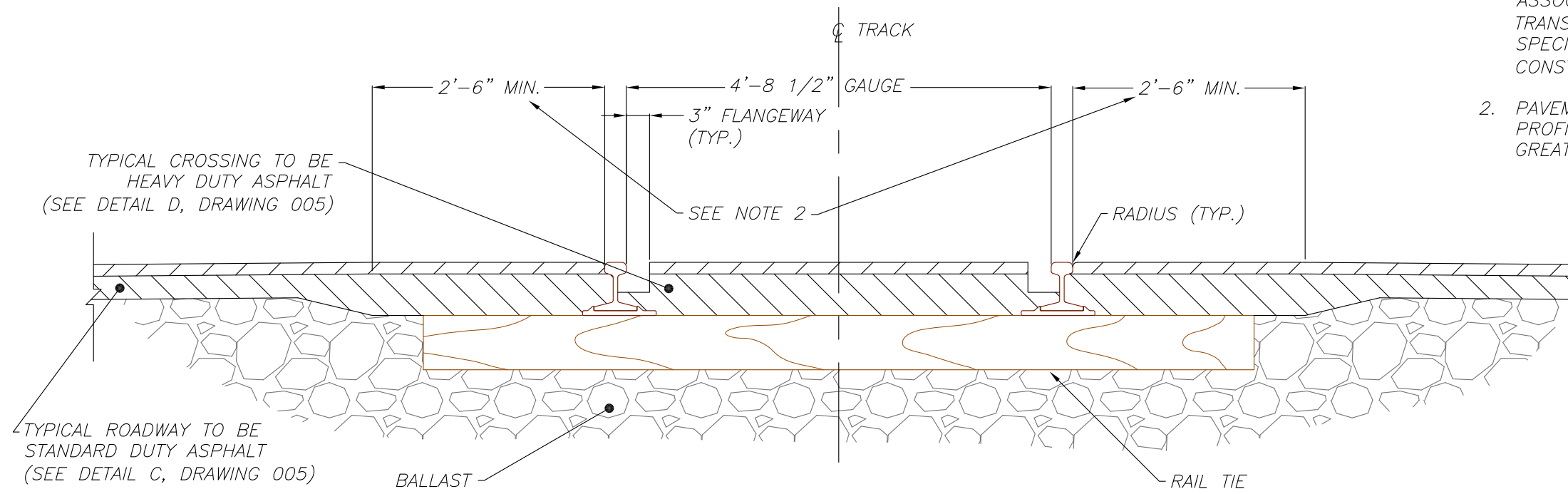
C DETAIL TYPICAL STANDARD DUTY ASPHALT
001|005 SCALE: NTS

GENERAL CONCRETE NOTES

1. ALL CONCRETE MATERIALS, CONSTRUCTION, AND WORKMANSHIP SHALL CONFORM TO ACI 318 AS WELL AS LOCAL LAWS AND ORDINANCES.
2. ALL CONCRETE UNLESS OTHERWISE NOTED SHALL BE A MINIMUM STRENGTH OF 3,000 PSI AT 28 DAY TEST.
3. CONCRETE SPECIFIED AS AIR-ENTRAINED SHALL CONTAIN 5-8% AIR CONTENT CONFORMING TO ASTM C260.
4. PORTLAND CEMENT IN CONCRETE MIX SHALL CONFORM TO ASTM C-150, TYPE I OR II.
5. CONCRETE CHEMICAL ADMIXTURES SHALL CONFORM TO ASTM C494.
6. CONCRETE SLUMP SHALL BE 4-6 INCHES.



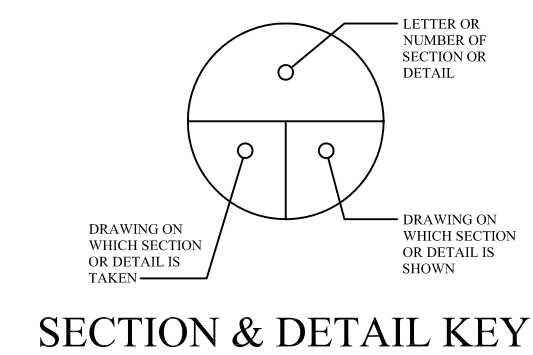
D DETAIL TYPICAL HEAVY DUTY ASPHALT
001|005 SCALE: NTS



E DETAIL TYPICAL AT-GRADE RAILROAD CROSSING
001|005 SCALE: NTS

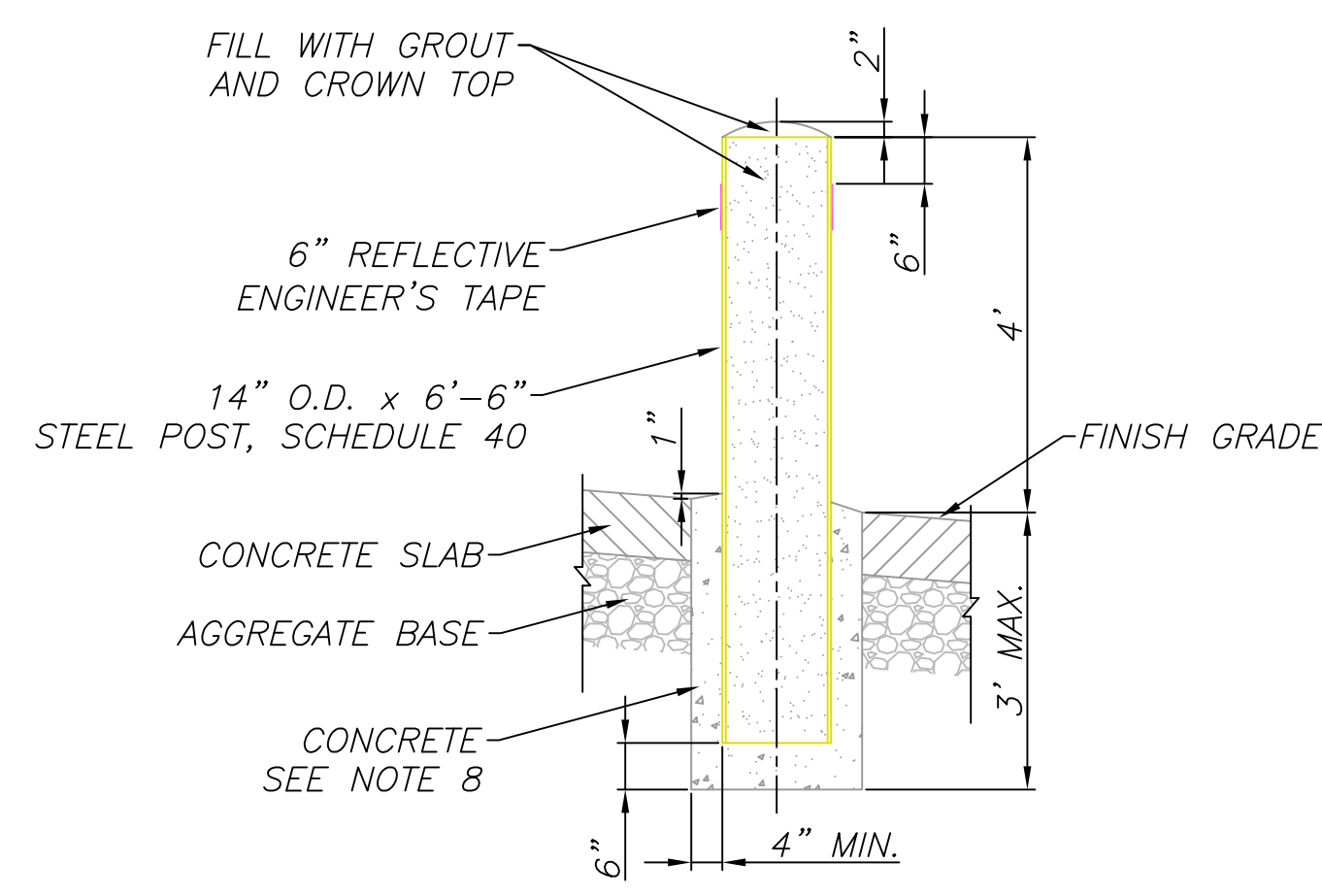
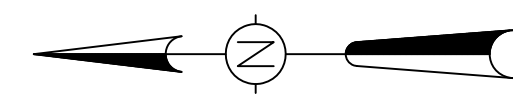
NOTES

1. AT-GRADE RAILROAD CROSSINGS SHALL CONFORM TO THE AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (A.R.E.M.A) STANDARDS AND CSX TRANSPORTATION "STANDARD GUIDELINES AND SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF PRIVATE SIDETRACKS".
2. PAVEMENT CROSS SLOPE TO EQUAL RAIL PROFILE. RAILROAD SKEW WILL RESULT IN GREATER DISTANCE.

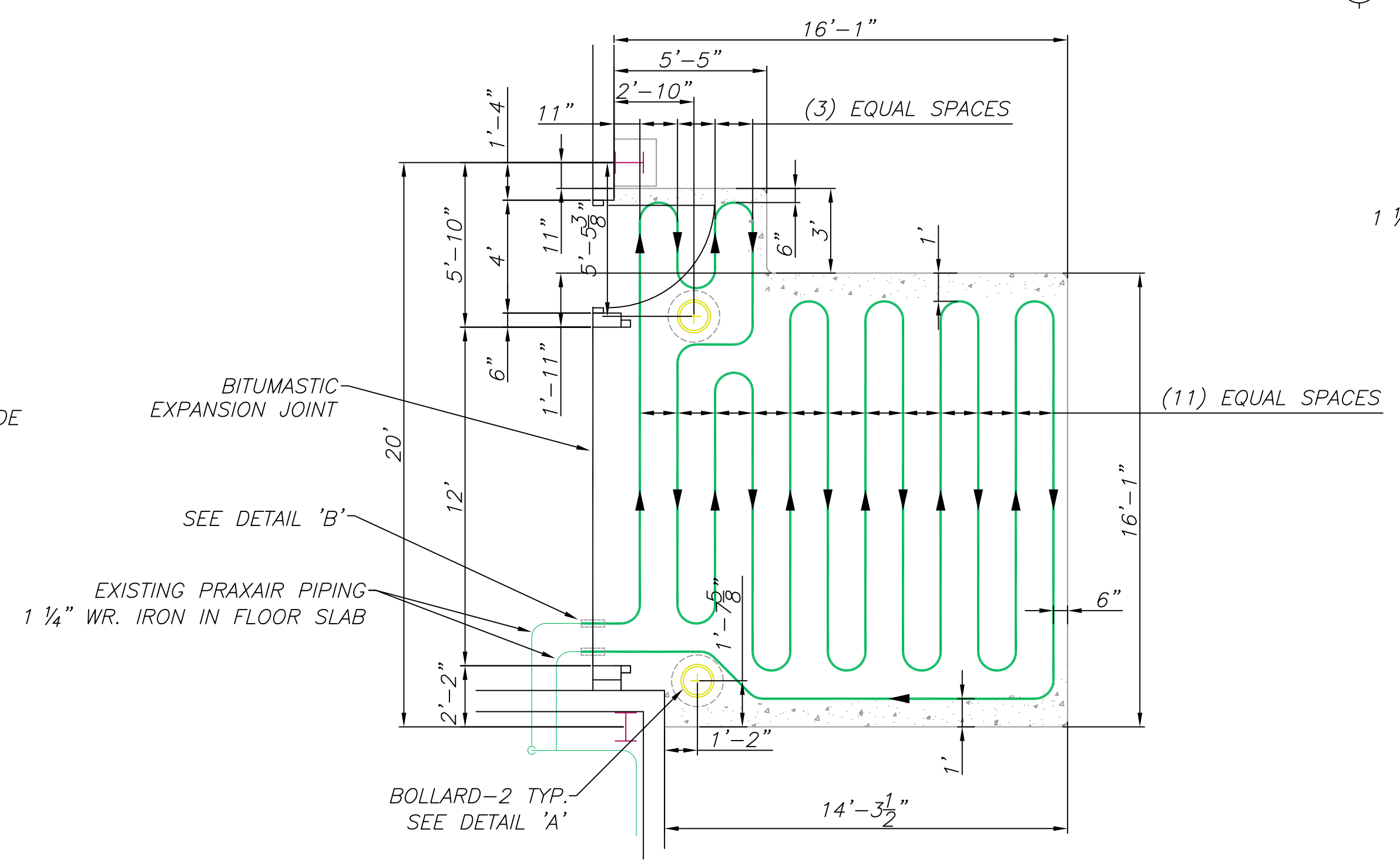


REVISIONS			
1	ISSUED FOR PRAXAIR APPROVAL		10/25/12
0	ISSUED FOR USACE APPROVAL		10/9/12
DESIGNED BY:	DRAWN BY:	APPROVED BY:	
C. BERES	C. BERES	W. LORENZ	
CABRERA SERVICES RADIOLOGICAL · ENGINEERING · REMEDIATION			
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS BUFFALO, NEW YORK			
LINDE FUSRAP SITE TONAWANDA, NY W912P4-07-D-0002, 0002			
DIRECT BURIED UTILITIES AND TUNNEL EXCAVATIONS RESTORATION PLAN - ASPHALT AND POST DETAILS			
SHEET NO.	AREA/SUBTASK	DRAWING NO.	DATE
SHEET 6 OF 6	AREA D2/M/F	BRP006-005	OCTOBER 9, 2012

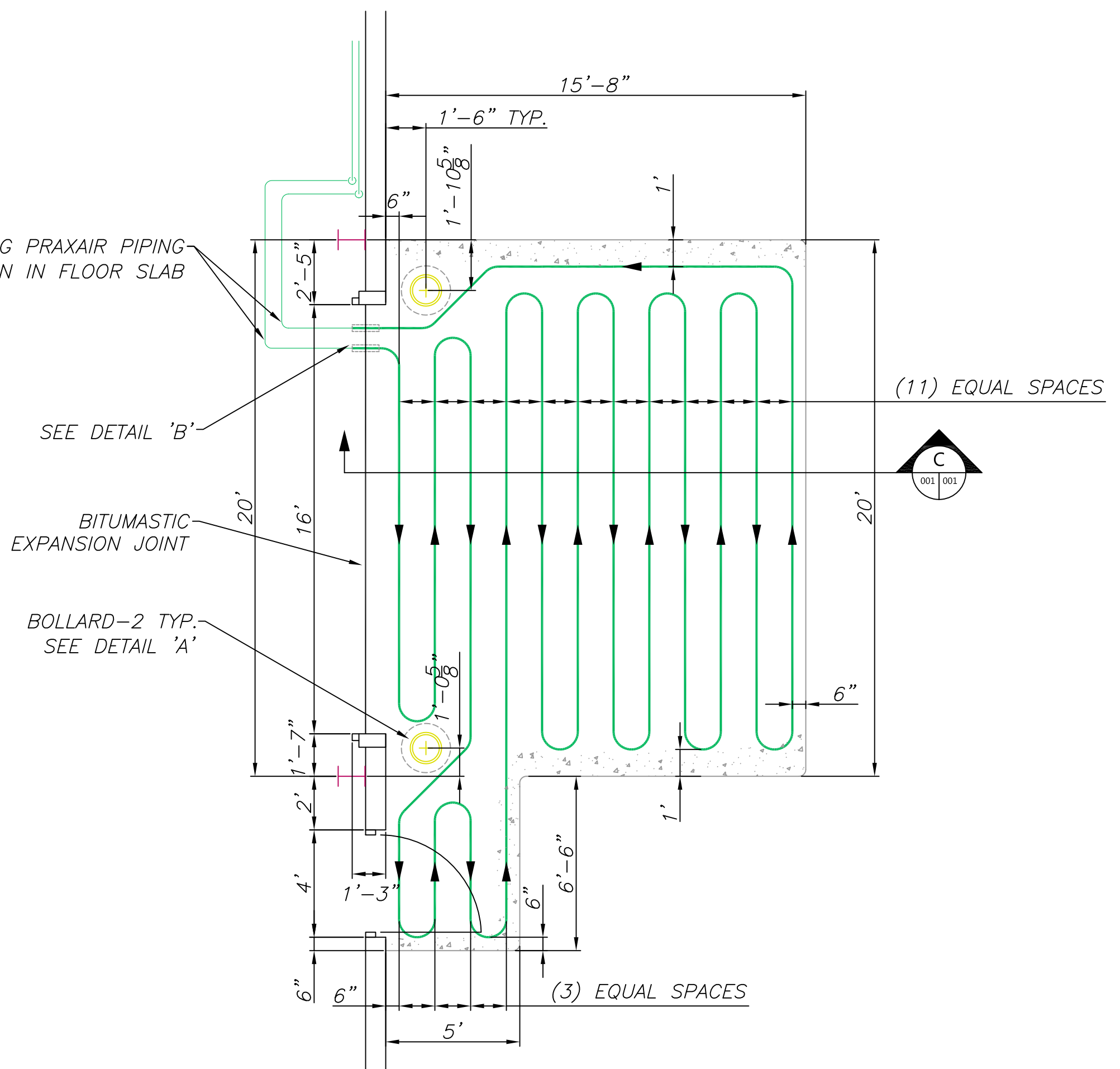
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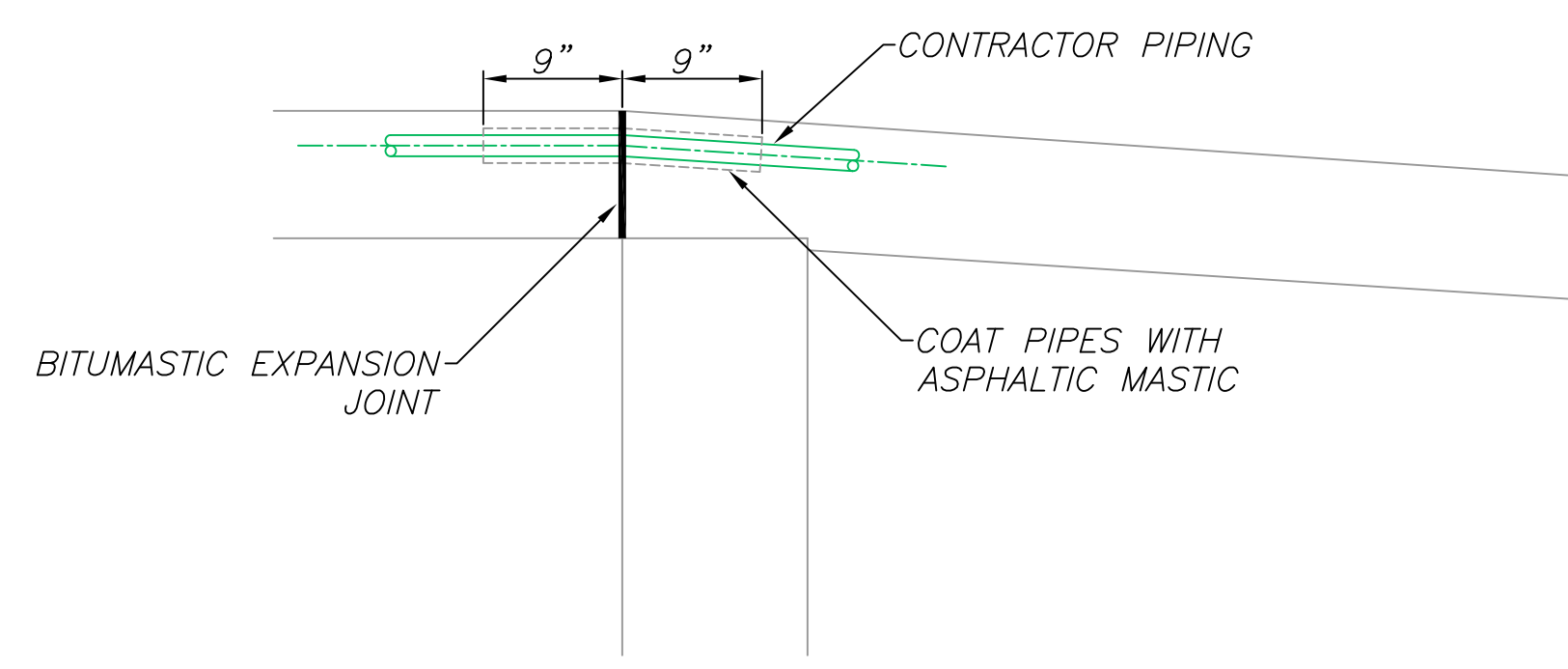
DETAIL A - BOLLARDS
SCALE 1/2" = 1'-0"



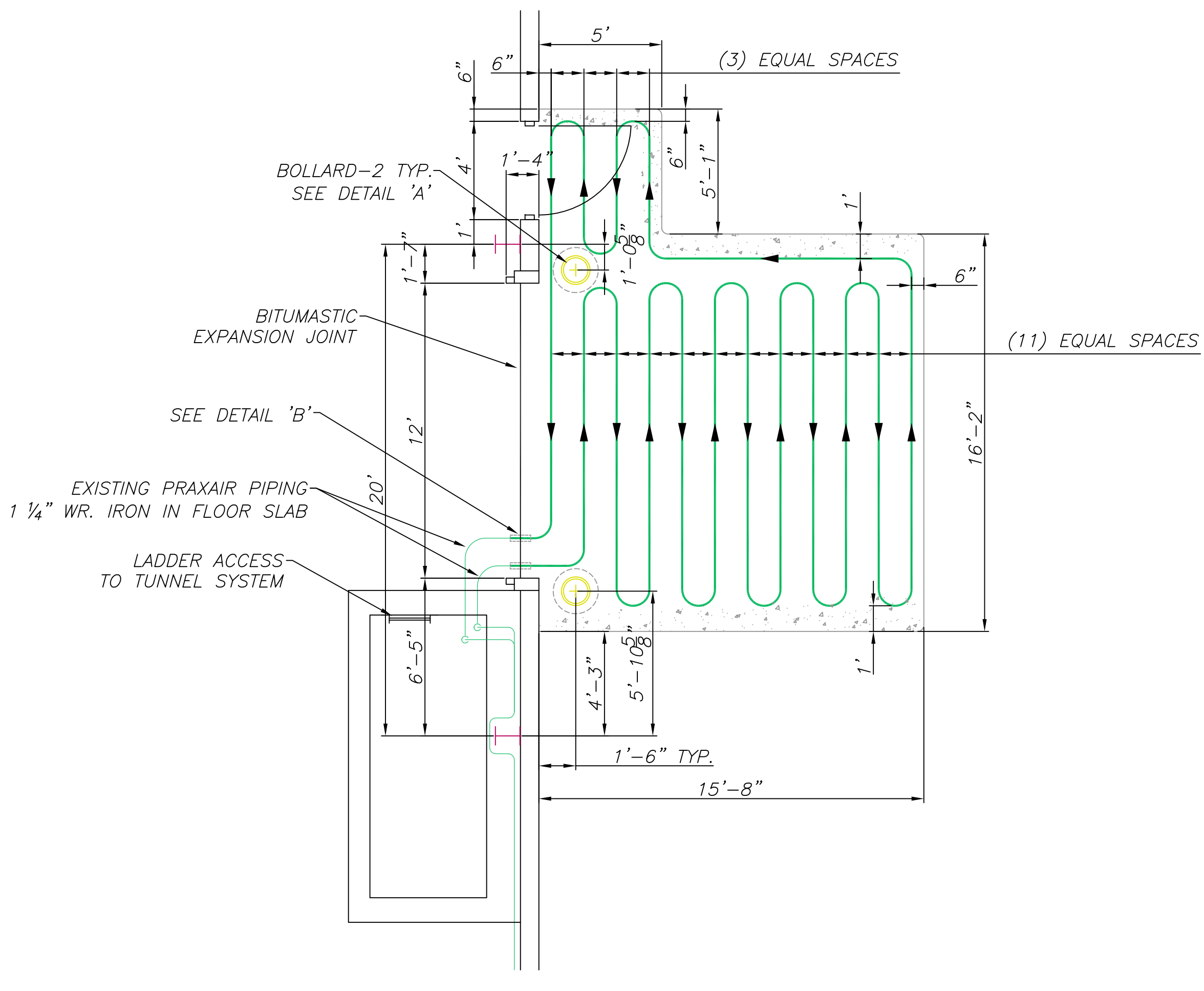
PLAN - CONCRETE APRON AT DOOR D-11
SCALE 1/4" = 1'-0"



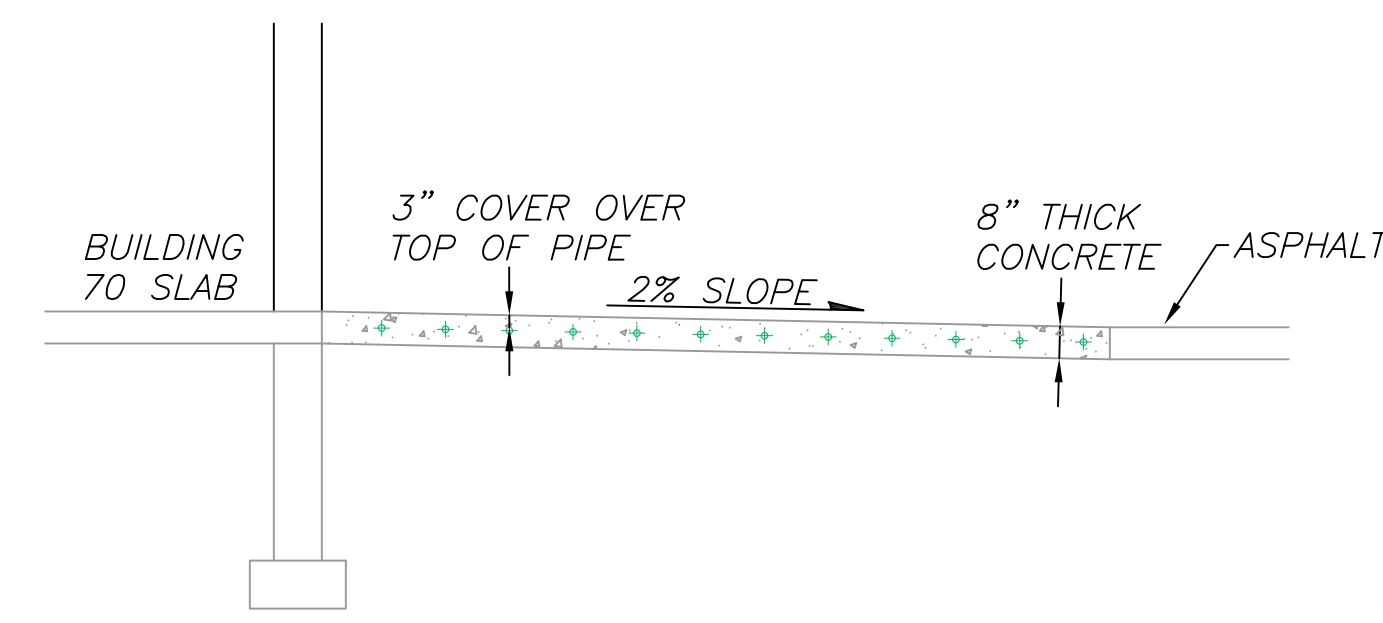
PLAN - CONCRETE APRON AT DOOR D-12
SCALE 1/4" = 1'-0"



DETAIL B - JOINT BETWEEN CONCRETE SLABS
SCALE 1" = 1'-0"



PLAN - CONCRETE APRON AT DOOR D-13
SCALE 1/4" = 1'-0"



SECTION C - CROSS SECTION FOR CONCRETE APRONS
SCALE 1/4" = 1'-0"
CROSS SECTION SIMILAR FOR ALL CONCRETE APRONS

NOTES

- PIPE COILS TO BE SUPPORTED ON CONCRETE OR STEEL STOOLS PRIOR TO PLACING CONCRETE
- ALL BURIED PIPING TO BE COMPLETELY COVERED ABOVE AND BELOW
- ALL BURIED PIPING TO BE 1-1/4" DIAMETER SCHEDULE 40 STEEL
- DIMENSIONS AND LAYOUT OF PIPE COILS TO BE DETERMINED IN FIELD
- PIPE COILS TO BE HYDROSTATIC TESTED AT 125# FOR (4) HOURS
- LOCATE PIPE COILS TO CLEAR 14" DIAMETER SLEEVES FOR BOLLARDS
- BOLLARDS TO BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER AND TWO COATS OF EXTERIOR HIGH GLOSS ENAMEL, COLOR YELLOW
- ALL CONCRETE TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI

REVISIONS		
9	RE-ISSUED FOR CONSTRUCTION	9/4/12
8	REVISED SLOPE OF CONCRETE APRONS	9/3/12
7	REVISED CONCRETE COVER OVER BURIED PIPING	9/3/12
6	REMOVED WELDED WIRE REINFORCEMENT AND SPECIFICATIONS	9/3/12
5	REVISED BURIED PIPING SPECIFICATIONS (NOTE 3)	8/31/12
4	CONSTRUCTION DRAWING WITHDRAWN	8/17/12
3	ISSUED FOR CONSTRUCTION	6/14/12
2	ADDED WELDED WIRE REINFORCEMENT AND SPECIFICATIONS	6/14/12
1	ADDED CONCRETE APRON THICKNESS DIMENSION	6/14/12

CABRERA SERVICES
RADIOLOGICAL · ENGINEERING · REMEDIATION

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
BUFFALO, NEW YORK

LINDE FUSRAP SITE
TONAWANDA, NY
W912P4-07-D-0002, 0002

PRAXAIR, INC. BLDG. 70 SNOW MELTING APRONS - PLANS AND DETAILS

SIGNATURE: PRAXAIR REPRESENTATIVE
PRINTED NAME: PRAXAIR REPRESENTATIVE
DATE:

SHEET NO.	AREA/SUBTASK	DRAWING NO.	DATE
SHEET 1 OF 1		A-474353-2012	MAY 14, 2012